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【TITLE OF THE INVENTION】

Data processing system for calculating conditions based on appreciation of mortgaged property

【ABSTRACT】

【PURPOSE】 To provide a data processing system for calculating the optimum value of a combination of a loan based on the appreciation of real property owned by a borrower as securitization, a revised upper limit of a loan on credit, deferred payments of installments, etc.

【CONSTITUTION】 The system of the present invention, which

selectively decides the appropriate balance between credit parameters associated with the financing of real property owned by a borrower as security, performs the management of the ratio of risk associated with the credit by the postponement of annual installments by applying a parallel single interest rate so that a future surplus can be paid in advance at a starting date decided by the system. If data necessary for a specific calculation are inputted to this data processing system, the appropriate limit of the credit to the borrower and the amount of the annual installments can be calculated, and the main problems in respect to a REM financial commodity can be solved.

【What is claimed is】

1. A system for accessing nonliquid assets having a measurable valuation and selectively determining an optimal combination of financial instruments corresponding to a combined secured credit and deferred annuity, the system comprising:

means for receiving and inputting into a data processing system a set of application parameters associated with a request for access to reverse equity financing, said application parameters including biographical data on an applicant and asset valuation data on one or more applicant-owned assets forming a basis for securitization of credit;

means for selectively accessing actuarial and forecasting data from a database in communication with said system;

data processing means in said system responsive to said input means and accessing means for calculating an optimum credit allocation and optimum insurance premium wherein said data processing means provides a framework of periodic payments

associated with a release of credit in the form of a reverse equity mortgage loan and a premium for a deferred annuity.

2. The system of claim 1 wherein said data processing means further comprises means for determining a deferral period based on said biographical data and stored life expectancy data.

3. The system of claim 2 wherein said forecasting data includes a rate of appreciation for selected assets.

4. The system of claim 3 wherein said system iteratively calculates separate payment schedules pursuant to user-selected preferences.

5. A data processing system for the selective optimization of financial instruments that includes a reverse equity mortgage and a deferred annuity to provide a surplus for an indeterminate period of time secured by pre-defined assets, the system comprising:

input means for selective entry of system and applicant account parameters corresponding to an assessment of a current and future value associated with said pre-defined assets;

data processing means responsive to said input means for determining an optimal mix of a reverse equity mortgage commitment and a deferred annuity structure corresponding to the selected surplus requirements of said account applicant and the valuation of said asset.

6. The system of claim 5 further comprising a second data processing means for providing a line of credit associated with a segmented portion of said assets available to provide additional credit

to the account applicant.

7. The system of claim 5 wherein said input means receives input parameters that include an appraisal, an appreciation rate, a loan start date, an actuarial assessment of the applicant, and the current interest rate.

8. The system of claim 5 wherein said data processor provides a set of account attributes based on the life expectancy of the account applicant and permits reassessment of account attributes via an interactive adjustment of selected parameters, including the deferral period for said annuity.

【DETAILED DESCRIPTION OF THE INVENTION】

【0001】

【FIELD OF INDUSTRIAL APPLICATION】 The present invention generally relates to systems for processing a plurality of individual accounts directed to mortgage analysis, and more particularly to a data processing system designed to evaluate select inputs corresponding to one of plural mortgage accounts to determine an optimum profile of operating characteristics for originating a reverse equity mortgage instrument.

【0002】

【PRIOR ART】 The run-up in real estate value during the last ten years has created an unprecedented accumulation of wealth in the physical assets of many persons. The story of the blue collar worker suddenly finding himself in a house worth many times the purchase price is commonplace. Indeed, as our general population ages, a

significant portion of the population is finding that most of their accumulated wealth is tied up with their home.

【0003】 It is of course mostly fortuitous that the aging generations in the United States have such wealth, as a minimum acting as an inflation hedge against the erosion of their purchasing power from fixed income, and the real return from other assets. This benefit comes with co-committant stresses and choices, especially for elderly homeowners. More particularly, inflation-diminished pensions in many instances simply do not provide enough to cover basic living expenses for those of retirement age. Although these homeowners are rich "on paper" their relatively minimal cash flow acts to impoverish them. Given their asset base in the house, these homeowners are left with a difficult choice regarding funding future needs, especially in view of concurrent strong desires to remain in their present homes.

【0004】 The increasing incidence of the foregoing circumstances has led to the development of a new form of mortgage debt. During the last several years, the financial community has begun to offer credit to homeowners based on the equity in the house. This form of this credit goes beyond the traditional second mortgages of home equity loans, as the repayment is deferred until the house is sold. In fact, the loan is structured as a stream of cashflows for a set duration corresponding to the level of equity in the house. In this way, homeowners enjoy living in their homes during the loan period while concurrently receiving monthly payments to cover living expenses. This form of financing is known as a reverse equity mortgage, or REM, and is now growing in popularity among those with the majority of assets in valuable real estate.

【0005】 The REM products are without a doubt an important and valuable advance in financing. Notwithstanding their current growth

and popularity, REM's include attributes and characteristics that do not satisfy the needs of many possible users. More particularly, the REM is a fixed mechanism with pre-defined time and cash limits; in some instances, the homeowner will survive these limits, necessitating the sale of the underlying home and depending on relatives. Moreover, the implementation of REM's is difficult, as the value of the equity in a home is subject to the vagaries of the marketplace. If the defined system is not properly structured, the issuing sponsor will end up with segments of the loan lacking properly mortgaged property.

【0006】

【PROBLEM TO BE SOLVED BY THE INVENTION】 It is, therefore, an object of the present invention to provide a data processing system that manages a plurality of asset-backed REM loans.

It is also an object of the present invention to provide a system for managing separate cash flow accounts that couples the features of a reverse mortgage instrument with the features of a single premium deferred annuity, to insure continued cash flow on an actuarial basis.

【0007】 Another object of the present invention is to provide a system for evaluating individual applications for REM financing and selectively determining the proper level and sequence of financial terms associated with a REM product.

【0008】 It is still another object of the present invention to provide a shared and appreciating REM product implemented and tracked in a data processing system.

【0009】

【MEANS FOR SOLVING THE PROBLEM】 The above and other objects of the present invention are realized in an illustrative REM account data processing system. The subject includes a database memory for storing a plurality of individual accounts. The accounts

correspond to loans provided to subscribers which are delivered in periodic payments in accordance with stored loan parameters. Individual accounts are stored in the memory and routinely updated by the system manager. The loan accounts are further coupled to a single premium deferred annuity of pre-selected type of characteristics conforming to the risk reduction attributes defined by the individual account needs.

【0010】 In accordance with the varying features of the present invention, the loan is ultimately repaid from the proceeds accruing from the sale of the asset used to secure the loan. The repayment event date is variable, and usually contingent on the death of the subscriber. To reduce the risk associated with the variable end of the loan term, the system implements a single premium deferred annuity to provide a surplus on hand at the point of loan asset exhaustion.

【0011】 The foregoing features are more fully appreciated taken in conjunction with the following description of a specific illustrative example thereof, including the following drawing.

【0012】

【EMBODIMENTS】 First is described the present invention in overview. The data processor is directed to two discrete functions for implementing the above-described financial system. The first function of the present invention involves determining an optimal mix of a loan and deferred annuity appropriate for reducing the risk to the borrower and the lender. In essence, the property securing the loan is evaluated for present and future worth. The age of the borrower is used to make an actuarial assessment of future surplus needs for the rest of his/her life. A balance is then struck between the diminishing net value in the house and the potential future need of income due to survival beyond the depletion date of this net value, and based thereon a set of loan

parameters are calculated as the optimal configuration for the extension of credit to the borrower.

【0013】 With the foregoing overview in mind, attention is now directed to a specifically delineated example of the present invention. Referring now to Fig. 1, the first step in determining the optimal mix for the borrower is to determine the Appraised Value (#2) for his or her property. An appraisal of the property is performed (#1) and the value is entered into the system. If the property value is less than the pre-established lower limit, a message is printed that the property is not appropriate for a reverse mortgage. If the property value is over the lower limit (#3), the property may be suitable for a reverse mortgage. At this point, as shown in #4, the borrower elects in a set aside a specific dollar amount of home net value to be preserved and not to be included in the reverse mortgage. This borrower's elected reserve amount, called Borrower's Elective Reserve, is protected in all but the case in which the home is destroyed and not rebuilt. As illustrated in #5, the Borrower's Elected Reserve is then subtracted from the Appraised Value, the result of which is called the Origination Home Value (#6). If the Origination Home Value is greater than the pre-established upper limit or less than the pre-established lower limit (#7), a message is printed that the property is not appropriate for a reverse mortgage. If the Origination Home Value is within the above-stated limits, then the Origination Home Value is multiplied by .2 and subtracted from the full Origination Home Value (#8). The product of this subtraction is the Base Amount from which the monthly payment is determined.

【0014】 As noted in #10 of Fig. 1, there are two additional factors besides the Base Amount which are used to calculate the Future Value of the Base Amount (#13). The first is the Appreciation Rate, which is

the rate determined by the lender (#11). This rate may change with the calculation of each loan or geographic area, or may be held constant for applicable parties with the same condition.

【0015】 The final factor is the Number of Periods Until the Deferred Annuity Payments Begin (#12). The system must first calculate the Deferral Start Date (#14) and add up the Number of Periods between the Start Date of the Loan (#15) and the Deferral Date (#14). During the first pass through the system, the Deferral Start Date is equal to the average life expectancy of the senior linked with his age. The average life expectancy is determined by (#16) accessing the interpolated Average Life Expectancy Tables (#17) for the Borrower's Age (#18). Once the Deferred Start Date is determined, the system calculates the number of periods from the Start Date of the Loan until the Deferral Start Date (#14).

【0016】 As part of the optimization aspect of this program, the system will recompute the Monthly Payment six more times by recalculating the Number of Periods Until the Deferred Annuity Payments Begin (#12). The system selects three start dates on either side of the average life expectancy in order to recompute the Number of Periods Until the Deferral Period Begins. This is described in more detail later in this document.

【0017】 Once the Number of Periods is got hold of, a Future Value of the Base Amount is calculated (#13) using the Appreciation Rate (#11) and the Base Amount (#9). The Future Value of the Base Amount is then multiplied by .2 and subtracted from the Future Value of the Base Amount (#13), resulting in the Lendable Future Value of the Property (#19).

【0018】 From the Lendable Future Value of the Property, the Future Value, computed at the note rate of all annuity costs, costs of

conclusion of a contact, the upper limit of loan on credit and/or costs of lump sum payments or both plus VISA credit limits, home repair costs as determined by termite inspection, and any prior liens against the property are subtracted. A more detailed discussion of the determination of the above-mentioned costs or amounts follows.

【0019】 The total costs for conclusion of a contact (#20) are defined as the sum of 1) title insurance costs (#21); 2) recordation and unsealed deed fees (#22); 3) Home Repair Costs (#23): home repair costs for work to be completed immediately after the loan origination and the extent of which was determined by a termite inspection and contractor as part of the loan origination process; and 4) appraisal fees (#24), all of which are manually determined and input into the system; plus 5) the loan origination fee (#25), which is calculated by multiplying the previously-determined Lendable Future Value of the Property (#19) by 0.15. The sum of these four costs are the total costs for conclusion of a contact to be paid by the borrower from the proceeds of the reverse mortgage (#20).

【0020】 The option of the revision of the line of credit (#26) is available to the borrower who elected to take less than the maximum amount of money available in the form of monthly reverse mortgage payments. To the extent that the borrower has a line of credit available and does not use it, the actual amount of the line of credit increases over time at the loan's stated interest rate until the amount of the maximum line of credit is reached on the annuity date. This amount is calculated by the system, as is more fully described below.

【0021】 Once determination of the amount of the line of credit is calculated, it can be offered to the borrower in one of four forms: 1) as a revolving credit limit for a no-fee Visa credit card (that is, the credit limit can be decreased, repaid, and again decreased as often as

required); 2) a line of credit that can be decreased at any time and does not need to be repaid until repayment of the reverse mortgage; 3) a single lump sum payment equal to or lesser than the amount under line of credit; or 4) an increase in the monthly reverse mortgage payment amount. The borrower may also select some combination of the above four forms, as long as the total amount does not exceed the maximum amount of the line of credit.

【0022】 The system determines the amount of the Line of Credit. Referring to Fig. 2, the first step in this calculation is determining the Future Value of the Property (#50). The inputs to the future value calculation are the Appraised Value of the property (#2); the Number of Periods Until the Deferred Annuity Begins (#12); and the Appreciation Rate (#11). With these inputs, generated previously within the system, the Future Value of the Property is calculated (#50). The Future Value of the Property is then multiplied by .8 (#51). If required by the lender, the Future Value of the Property can be further reduced by multiplying by .8 or by some other required factor (#52). The result of this process is the Lendable Future Value of the Property (#19). The difference (#54) between the Lendable Future Value of the Property (#19) and the Future Value of the Mortgage Amount (#53) creates the Future Value of the Line of Credit (#54). The Future Value of the Line of Credit is then present-valued, the result of which is the Present Value of the Line of Credit (#55), the amount being calculated in this section of the system.

【0023】Alternatively, the borrower can specify a present value amount of the line of credit at the loan origination. Under this alternative the present value of the Line of Credit (#55) is input and computations proceed. This input amount may not exceed 10% to 50% of the Lendable Future Value of the Property (#19).

【0024】 The Future Value of Mortgage Amount (#53) is calculated by inputting the following inputs into the system; 1) the desired monthly payment amount specified by the borrower (#33), which the system will check against the maximum monthly payment, to ensure that the desired monthly payment does not exceed the maximum possible monthly payment; 2) the interest rate on the reverse mortgage (#32); 3) the Number of Periods until the Desired Annuity Payments Begin (#12); and the initial Closing Costs (#30). With these inputs, the Future Value of Mortgage Amount (#53) can be calculated. Each day the Number of Periods Until the Deferred Annuity Payments Begins shortens, which in turn, increases the Future Value of the Line of Credit. This means that as time passes, the amount of the line of credit available increases, if the borrower has not previously used the line of credit.

【0025】 After the Future Value of the Line of Credit (#54) is determined, the Present Value of the Line of Credit can be determined (#55). The inputs for the present value calculation are: 1) the Future Value of the Line of Credit (#54); 2) the Number of Periods Until the Annuity Date (#12); and 3) the Interest Rate on the reverse mortgage (#32). After the present-value calculation is made, the Present Value of the Line of Credit is the result (#55).

【0026】 At this point, the system asks if the Present Value of the Line of Credit is greater than 10% to 50% of the Current Appraised Value (#2). The present value of the line of credit is limited to 10% to 50% of the current Appraised Value (#2) at loan origination. If the answer is yes, the amount of the desired line of credit must be reduced. The system re-rerun until the answer is no. If the amount is less than 10% to 50%, then the only remaining choice is the form in which the borrower wishes to utilize the available line of credit (#55). Regardless

of which form the borrower elects, the total amount of all forms shall not exceed the total Present Value of the Line of Credit (#55).

【0027】 Returning now to Fig. 1, the following subsystems are separately discussed in accordance with system processing.

Home Repair Reserve (#27): A portion of the Line of Credit Amount, whether or not selected by the borrower, may be allocated to a Home Repair Reserve. This reserve is computed by applying the Home Health Care Index to the condition of various critical home repair items at the time of the loan origination.

【0028】 Annuity costs (#33): The annuity costs are determined by using Look-Up Table (#34). The variables necessary to use the Look-Up Table (#34) are: 1) the calculated Deferral Start Date 1 (#14 and #16) and 2) the Annuity Cost Table (#35).

【0029】 Liens (#28): If there are any remaining mortgages or other liens on the property, they must be removed prior to placing a reverse mortgage on the property. The reverse mortgage is to be the first lien against the property.

【0030】 Home Repair Costs (#23): Home repair costs for work to be completed immediately after the loan origination and the extent of which was determined by a termite inspection and independent contractor as part of the loan origination process.

【0031】 At this point in the system, the Closing Costs (#20), the Present Value of the Line of Credit (#55), Annuity Costs (#33), and Costs of Liens (#28) are added together (#30), and then subtracted (#32) from the Lendable Future Value of the Property (#19). The result is the Net Base Amount from which the monthly payment is calculated (#36).

Given the senior's prior choices of Elected Reserve Equity (#4) and Line of Credit options, the system can calculate the reverse

mortgage monthly payments using as variables: 1) the Net Base Amount (#36); 2) the Interest Rate (#32); and 3) the Number of Periods until the Deferred Annuity Payments Begin (#12).

【0032】 Once the Monthly Payment is determined (#37), the borrower decides if the monthly amount is too high. If it is, the borrower should select a smaller amount (#38), at which point the system will return to the calculation of the line of credit function and recompute the monthly payment based on a higher amount under the line of credit available which it will also recompute (#39).

【0033】 If the amount is not too high, then the borrower is asked if the amount is too low. If the answer to that question is no, then the system prints out a statement showing the calculated monthly payment and the amount of the line of credit available, if any (#40).

【0034】 If the borrower answers that the amount is too low, then the system selects a new deferral period for each of the three years on either side of the deferral period used in the current calculation (#14). The system then recomputes seven new monthly payment amounts and puts each of these payments and annuity costs associated with each payment into a Table. The Table (#41) is then used, along with the Number of Periods Until the Deferral Start Date Begins (#12) and the Interest-Rate (#32), to calculate the Net Present Value of each of the Seven Alternatives (#42). The system then selects the Choice with the Highest Net Present Value Amount (#43), which is the optimized Monthly Payment for the Borrower (#44).

【0035】 The above-described arrangement is merely illustrative of the principles of the present invention. Numerous modifications and adaptations thereof without departing from the spirit and scope of the present invention will be readily apparent to those skilled in the art.

【BRIEF DESCRIPTION OF THE DRAWINGS】

【Fig. 1】 The logic command structure for selecting the optimal mix of cash and deferred asset flows in accordance with the present invention; and

【Fig. 2】 The logic command structure for a selected determination of the line of credit on an account basis.

【EXPLANATIONS OF THE REFERENCE NUMBERS】

#1 Appraisal of the Property

#2 Appraised Value

#3 Judgment on if the Lower Limit Has Been Exceeded

#4 Borrower Determines the Elective Reserved Equity

#5 Subtract Elective Reserved Equity from the Appraised Value

#6 Origination Home Value (OHV)

#7 Judgment on whether OHV is between the Lower Limit and Upper Limit

#8 Multiply the OHV by 0.2 and Subtract from the OHV

#9 Base Amount as a Base for Calculation of Monthly Payment

#10 Calculation of the Future Value of Base Amount

#11 Appreciation Rate Supplied By Lender

#12 Number of Periods until the Deferred Annuity Begins

#13 Future Value of Base Amount (FVBA)

#14 Deferral Start Date

#15 Start Date of the Loan

#16 Deferral Start Date

#17 Interpolated Average Life Expectancy Tables

#18 Borrower's Age

#19 Lendable Future Value of the Property

#20 Contract Concluding Cost

#21 Title-holder's Insurance Costs

#22 Recordation Fee

#23 Home Repair Costs

#24 Appraisal Fee

#25 Loan Origination Fee

#26 Upper Limit of Credit Loan

#26B Non-fee VISA

#27 Home Repair Reserve

#28 Lien

#29 Lump Sum Payment

#30 Total Contract Concluding Costs

#32 Interest Rate

#33 Annuity Cost

#34 Look-Up Table for Constituting the Contrast Table of the Annuity Cost

#35 Annuity Cost Table

#36 Net Base Amount

#37 Monthly Payment

#38 Borrower Selects Smaller Monthly Payment

#39 Return to the Calculation of Line of Credit, and Input the Revised Amount of the Desired Monthly Payment in #37

#40 Print the Monthly Payment to Borrower and the Line of Credit

#41 Selection Table for the Monthly Payments and Annuity Costs

#42 Calculate the Net Present Value of Each of the Seven Alternatives

#43 Select the Choice with the Highest Net Present Value Amount

#44 Optimized Monthly Payment for the Borrower

#50 Future Value of the Property (FVP)

#51 Multiply the FVP by 0.8

#52 Multiply 0.8FVP by a Percentage Determined by the Lender

#53 Future Value of the Mortgage Amount (FVMA)

#54 Future Value of the Line of Credit Obtained by Subtracting the FVMA from the LFVP

#55 Present Value of the Line of Credit (PVLOC)